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EXAMINER
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JOYNER, KEVIN

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* RICHARD S. POTEMBER  
and WAYNE A. BRYDEN

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Appeal 2009-004013  
Application 10/541,112  
Technology Center 1700

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Decided: December 14, 2009

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Before: CATHERINE Q. TIMM, LINDA M. GAUDETTE and KAREN M.  
HASTINGS, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-4 and 6-30. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellants' invention relates to an apparatus for neutralizing or destroying airborne pathogens (spores, bacteria, and viruses) and chemical toxins in commercial heating, ventilation, and air conditioning (HVAC) air handling systems (Spec. ¶ [0003]). The apparatus includes a reaction chamber with air inlet and air outlet, a conduit for introducing aqueous hydrogen peroxide into the reaction chamber, an ultraviolet light source, and a porous matrix. Claim 1 is illustrative:

1. A system for neutralizing airborne pathogens, comprising:

A. a flow-through reaction chamber having:

1. a chamber air inlet at a first end of the reaction chamber to admit air contaminated with pathogens, and

2. a chamber air outlet at a second end of the reaction chamber to release decontaminated air, and defining between the air inlet and air outlet a passageway,

B. a supply of aqueous hydrogen peroxide connected to a conduit for introducing aqueous hydrogen peroxide into the reaction chamber,

C. an ultraviolet light source for introducing UV light into the reaction chamber, and

D. a porous matrix for providing additional surface area on which the neutralization of pathogens can occur.

The Examiner relies upon the following evidence:

<u>First Named Inventor</u>	<u>Patent Number</u>	<u>Issue Date</u>
Patapoff	US 5,656,246	Aug. 12, 1997
Berman	US 5,766,455	Jun. 16, 1998
Kekez	US 5,882,591	Mar. 16, 1999

Murphy	US 5,972,196	Oct. 26, 1999
Goswani	US 5,993,738	Nov. 30, 1999
Wen	US 6,673,137 B1	Jan. 6, 2004
Reisfeld	US 6,884,399 B2	Apr. 26, 2005

Korte, Derwent Abstract for DE 40 01 305 A1, pub. Jul. 25, 1991 (Derwent week 199705).

The Examiner maintains, and Appellants seek review, of the following rejections:

1. Rejection of claims 1, 4, 6-9, 12, 16, 18, 19, 23-27, 29, and 30 under 35 U.S.C. § 103(a) as unpatentable over Goswani in view of Korte and Reisfeld;
2. Rejection of claims 2 and 3 under 35 U.S.C. § 103(a) as unpatentable over Goswani, Korte, and Reisfeld as applied to claim 1, and further in view of Murphy;
3. Rejection of claims 10 and 28 under 35 U.S.C. § 103(a) as unpatentable over Goswani, Korte, and Reisfeld as applied to claims 1 and 27, and further in view of Wen;
4. Rejection of claims 11, 13, and 14 under 35 U.S.C. § 103(a) as unpatentable over Goswani, Korte, and Reisfeld as applied to claims 1 and 12, and further in view of Kekez;
5. Rejection of claim 15 under 35 U.S.C. § 103(a) as unpatentable over Goswani, Korte, Reisfeld, and Kekez as applied to claims 1 and 12, and further in view of Murphy;
6. Rejection of claims 17, 20, and 21 under 35 U.S.C. § 103(a) as unpatentable over Goswani, Korte, and Reisfeld as claimed to claim 16, and further in view of Berman;

7. Rejection of claim 22 under 35 U.S.C. § 103(a) as unpatentable over Goswani, Korte, Reisfeld, and Kekez as claimed to claim 13, and further in view of Patapoff; and
8. Provisional rejection of claims 1, 4, 6-13, 15-17, 22-24, 27, and 28 on the ground of non-statutory obviousness-type double patenting as unpatentable over claims 1, 2, 4, 5, 7-10, 18, and 19 of copending Application 10/257,196<sup>1</sup> in view of Korte.

Appellants' sole contention is that their claim 1 requires a porous matrix and such is not taught by Reisfeld, the reference the Examiner relies upon as teaching a porous matrix (Br. 6). Appellants rely upon this argument to overcome all the obviousness rejections (Br. 6-7). Therefore, we select claim 1 as representative of the issue on appeal for all the obviousness rejections.

Appellants do not advance any arguments against the non-statutory double patenting rejection, but instead state that they will file a terminal disclaimer upon receiving an indication of allowable subject matter (Br. 8). We, therefore, summarily sustain the non-statutory double patenting rejection.

## II. DISPOSITIVE ISSUE

Have Appellants established that the Examiner reversibly erred in finding that Reisfeld's filter element is "a porous matrix" of the structure required by claim 1?

## III. FINDINGS OF FACT

The following Findings of Fact (FF) are particularly relevant for disposing of the issue on appeal:

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<sup>1</sup> Application 10/257,196 issued as US Patent 7,407,633 on August 5, 2008.

1. The Examiner finds that Reisfeld discloses “a porous matrix made of aluminum foam . . . that is capable of providing additional surface area on which the neutralization of pathogens can occur.” (Ans. 7, citing Reisfeld, col. 4, ll. 1-25; *see also* Final Rejection 4.)
2. Figure 1 of Reisfeld is reproduced below:

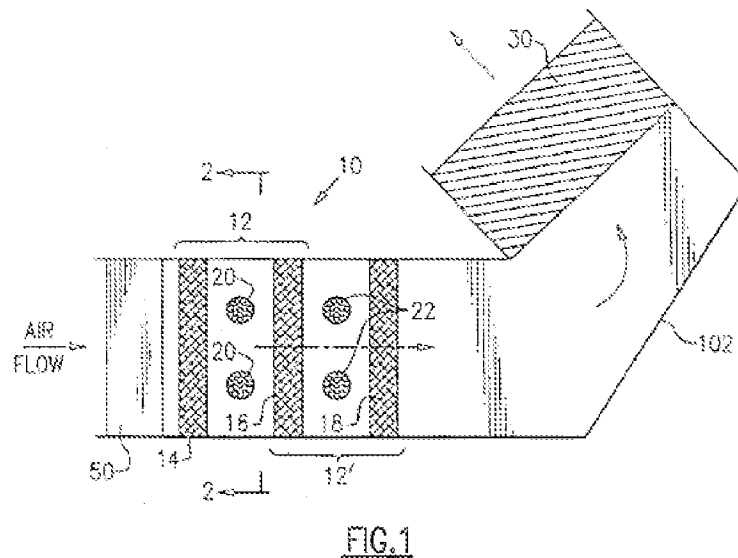


Fig. 1 is a plan view of a photocatalytic purifier in accordance with Reisfeld's invention (Reisfeld, col. 2, ll. 58-59).

3. Reisfeld at column 4, lines 1-25 describes filter elements (shown as filter elements 14, 16, and 18 in Fig. 1<sup>2</sup>) having a catalytic coating (Reisfeld, col. 4, ll. 8-13). Air propagates through the filter elements 14, 16, and 18 of the air purifier 10 as shown in Figure 1. As air passes over the catalytic coating on the filter elements 14, 16, and 18, a photocatalytic

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<sup>2</sup> Column 4, lines 1-25 of Reisfeld misidentifies the filter elements as 12, 14, 16, but it is clear from Figure 1 and other portions of the text that 12 refers to filter layers (*see, e.g.*, col. 3, ll. 51-54) and 14, 16, and 18 refer to filter elements (*see, e.g.*, col. 4, ll. 38-42).

oxidation (PCO) reaction occurs. PCO destroys a wide range of contaminants in air streams (col. 4, ll. 26-42).

4. Appellants point out that their porous matrix is not primarily used as a filter having a coating to react with pollutants in the air. They contend that their porous matrix has a different primary function and purpose, namely, to provide additional surface area on which free radicals can react with pathogens as recited in claim 1. Appellants cite to paragraph [0045] of their Specification in support. Paragraph [0045] discloses that, in Appellants' UV/H<sub>2</sub>O<sub>2</sub>/ozone system, ozone and aqueous hydrogen peroxide are mixed together before being sprayed into the reaction chamber. (Br. 6.)
5. Appellants do not point to a definition of "porous matrix," nor any disclosure in the Specification structurally distinguishing their disclosed porous matrix from a filter element (Br. 6; *also see* Spec. generally.)
6. Appellants' Figure 1 is reproduced below:

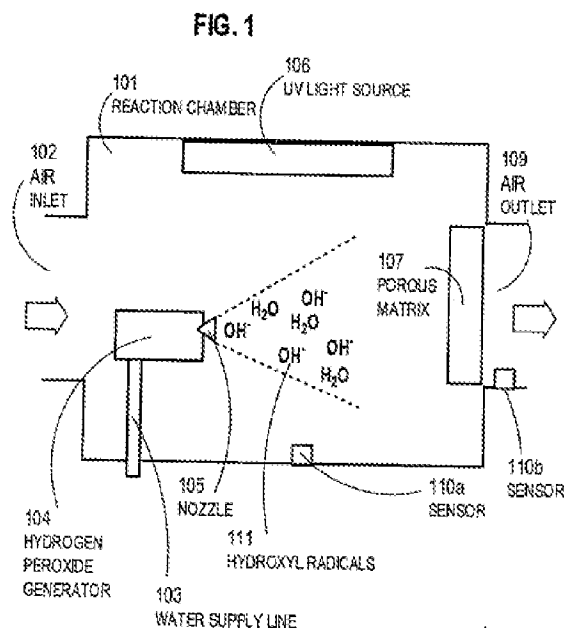


Fig. 1 is a block diagram of an embodiment of Appellants' UV/H<sub>2</sub>O<sub>2</sub> neutralization system (Spec. ¶ [0013]).

7. Figure 1 depicts porous matrix 107 covering the reaction chamber air outlet 109. Air passes through the porous matrix before leaving the reaction chamber as shown by the arrows in Figure 1 (Fig. 1; *see, also*, Spec. ¶ [0042]).

#### IV. PRINCIPLES OF LAW

Claims directed to an apparatus must be distinguished from the prior art in terms of structure. *See In re Danly*, 263 F.2d 844, 848 (CCPA 1959) (“Claims drawn to an apparatus must distinguish from the prior art in terms of structure rather than function.”); *In re Gardiner*, 171 F.2d 313, 315-16 (CCPA 1948) (“It is trite to state that the patentability of apparatus claims must be shown in the structure claimed and not merely upon a use, function, or result thereof.”). Choosing to define an element functionally, i.e., by what it does, carries with it a risk. Where there is reason to conclude that the structure of the prior art is inherently capable of performing the claimed function, the burden shifts to the applicant to show that the claimed function patentably distinguishes the claimed structure from the prior art structure. *See In re Schreiber*, 128 F.3d 1473, 1478 (Fed. Cir. 1997); *In re Hallman*, 655 F.2d 212, 215 (CCPA 1981).

#### V. ANALYSIS

Given that Reisfeld's filter elements have a surface that interacts with air that may contain pathogens, are coated with a catalyst such that a photocatalytic reaction may occur, and that this reaction destroys contaminants in air streams, it was reasonable for the Examiner to find that Reisfeld's filter elements are capable of “providing additional surface area



on which the neutralization of pathogens can occur” as recited in claim 1 (FF 1-3). Appellants provide no convincing evidence that their “porous matrix” has a structure different than a filter (FF 5). In fact, Appellants’ “porous matrix” is situated within the chamber such that air flows through it in a manner similar to the filter elements of Reisfeld (*compare* FF 2-3 to FF 6-7). Because the evidence supports the finding of the Examiner, the burden shifted to Appellants to show that the claimed function patentably distinguishes the claimed structure from the prior art structure. *Schreiber*, 128 F.3d at 1748; *Hallman*, 655 F.2d at 215. Appellants provide no convincing evidence of such a difference. The fact that the purpose Reisfeld discloses for the filter elements is somewhat different than that claimed does not establish that the structure is patentably different. *Danly*, 263 F.2d at 848; *Gardiner*, 171 F.2d at 315-16.

## VI. CONCLUSION

We sustain all of the rejections maintained by the Examiner.

## VII. DECISION

The decision of the Examiner is affirmed.

Appeal 2009-004013  
Application 10/541,112

### VIII. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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